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| 10/767,778 | 01/30/2004 | Yoshiko Yasuda | NITT.0180 | 5694 |

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| EXAMINER | |
|---|---|
| JAMI, HARES | |

| ART UNIT | PAPER NUMBER |
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| 2162 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/767,778 | YASUDA ET AL. | |
| | Examiner | Art Unit | |
| | Hares Jami | 2162 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/30/2004 and 11/07/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## *DETAILED ACTION*

This is in response to the preliminary amendment filed 10 October 2006 for application 10767778, which was filed on 30 January 2004.

Claims 1-19 and 22 are pending; of which claims 20-21 have been cancelled and claims 1, 4, 9, and 12 are in independent forms.

## *Priority*

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. JP 2003-021301, filed on 30 January 2003.

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. ('Saito', hereafter), US Publication No. 2004/0111441 A1 (filed on Dec. 9, 2002) in view of McBrearty et al. ('McBrearty', hereafter), US Publication 2002/0133681 A1 (published on Sep. 19, 2002), and further in view of Pitts, US Patent No. 6,205,475 B1 (patent issuing date: Mar. 20, 2001).

Regarding claim 1,

Saito discloses a file replication method for creating, in a distributed file system including a plurality of network storage apparatus (See Fig. 4, Saito) and a replication system each connected to a network (Saito discloses a replication engine [i.e., system] creating replica of files, see [0012], [0062], and Fig. 1, Saito) wherein the replication system has a management table for managing attribute information of all files and directories in the network storage apparatus as a replication source (See Fig. 3 and [0075], Saito) , a partial copy of data stored in the network storage apparatus as the replication source in the network storage apparatus as a replication destination (Saito discloses "Delta Propagation" system creating a replica of a changed portion of a file

from a source node to the destination node, see [0113], Saito) , said method comprising the steps of:

- preliminarily recording replication information for specifying a file as a target of replication in said replication system (Saito discloses recording the file name and directory ID as specifying the replicating files; also Saito discloses "gold replica" files as core replicas that are used as target files for replication, See [0069]-[0070], and Fig. 2, Saito);
- receiving a file access request from a client (See [0012] and [0061], Saito);

Saito discloses all the limitations as stated above. Saito further discloses the replication engine making decision (i.e., judging) on integration, updates, and request functions. Moreover, as stated above, Saito discloses the limitations of management table and replication information which is identity of the replicating files See [0069]-[0070], and Fig. 2-3, Saito). However, Saito does not clearly discloses judging whether or not a replicating operation should be performed with execution of said file access request by using said management table and said replication information. On the other hand, McBrearty discloses a method of automatically generating and disbanding data mirrors according to workload conditions, which is from the same field of endeavor of data replicating (See [0009], McBrearty). McBrearty discloses that judging whether or not mirroring (i.e., replication) operation would be performed or not using the storage information (See [0009], McBrearty). Therefore, it would have been obvious at the time the invention was made to modify the teachings of Saito with McBrearty's system. A

skilled artisan would have been motivated to incorporate the technique of judging whether or not a mirroring (i.e., replication) is performed or not, as taught by McBrearty (See [0009], McBrearty) into the method step of making decision, managing attribute table, and replication information of Saito in order to judge whether or not a replicating operation should be performed with execution of the file access request by using the management table and the replication information. The motivation for doing so would have been to increase the efficiency of the system by reducing the overhead of replicating unnecessary data corresponding to the access request.

The combination of Saito and McBrearty teaches all the limitation as stated above. However, it does not clearly disclose simultaneously transferring, if a result of said judgment is such that the replicating operation should be performed, said file access request to said network storage apparatus as the replication source and to said network storage apparatus as the replication destination. On the other hand, Pitts discloses a request interceptor in network nodes for determining local storage of file image satisfying predetermined criteria, which is form the same filed of endeavor of replicating (i.e., imaging) of data over network (See col. 6, lines 19-54, Pitts). Pitts discloses that the system simultaneously transfers the data access request to multiple storages having the same dataset, which are replica of each other (See col. 23, lines 59-67, Pitts). Therefore, it would have been obvious at the time the invention was made to modify the teachings of the combination of Saito in view of McBrearty with Pitts's system. A skilled artisan would have been motivated to incorporate the technique of simultaneously transferring the data access request to multiple storages having the

same dataset, which are replica of each other, as taught by Pitts (See col. 23, lines 59-67, Pitts) into the method step sending the client access request of the combination of Saito in view of McBrearty in order to simultaneously transferring, if a result of said judgment is such that the replicating operation should be performed, the file access request to a network storage apparatus as the replication source and to the network storage apparatus as the replication destination. The motivation for doing so would have been to increase the speed of the system by accessing the closer network storage having the same data, which results in reducing the amount time accessing the data.

Regarding claim 2,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein said replication system contains synchronization information indicative of whether or not contents of a file and a directory, each as an object to be copied, maintain consistency between the network storage apparatus as the replication source and the network storage apparatus as the replication destination and judges that the replicating operation should be performed under a condition that said synchronization information indicates consistency in said judgment step (Saito discloses the system may synchronously pushes the updates (i.e., synchronous information) to all replicas which are indicative of that the content of replicas either file and directories should be changes to maintain the consistency of the system [see [0050], Saito]; and also McBrearty discloses judging whether replication is performed or not [see [0009], McBrearty], which corresponds to the limitation of wherein said replication system contains synchronization information indicative of whether or not contents of a file and a

directory, each as an object to be copied, maintain consistency between the network storage apparatus as the replication source and the network storage apparatus as the replication destination and judges that the replicating operation should be performed under a condition that said synchronization information indicates consistency in said judgment step).

Regarding claim 3,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein the judgment is performed in said judgment step that the replicating operation should be performed under a condition that the received file access request is a write request (Saito discloses that received file access request might be a write request [see [0083], Saito]; and also McBrearty discloses judging whether replication is performed or not [see [0009], McBrearty], which corresponds to the limitation of wherein the judgment is performed in said judgment step that the replicating operation should be performed under a condition that the received file access request is a write request).

Regarding claims 4 and 6-7,

the scopes of claims 4 and 6-7 are substantially the same as claims 1-3, respectively. Therefore, claims 4 and 6-7 are rejected on the same basis as set forth for the rejections of claims 1-3, respectively.

Regarding claim 5,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein said replication unit further includes a consistency unit for maintaining

consistency of all files and directories, each as an object to be copied, between the network storage apparatus as the replication source and the network storage apparatus as the replication destination (Saito discloses a consistency management (i.e., unit) for maintaining the consistency between files and directories of a file system by maintaining a distributed graph of replicas for each file between a network storage devices including source and target nodes, see [0069], Saito).

Regarding claim 8,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein said replication information is at least one rule indicating that a file having a specified user or group identifier, a file belonging to a specified directory, or a file having a specified file identifier is an object to be copied (Saito disclose the file identification or ID of directory and replicating file, see [0070], and Fig. 3, Saito).

Regarding claims 9-10,

the scopes of claims 9-10 are substantially the same as claims 1 and 3, respectively. Moreover, Saito discloses an NFS file system as a virtualized-and-unified file system (See [0060], Saito). Therefore, claims 9-10 are rejected on the same basis as set forth for the rejections of claims 1 and 3, respectively.

Regarding claim 11,

the combination of Saito in view of McBrearty and further in view of Pitts discloses collecting a response to the file access request from said network storage device storing therein said file and a response to the file access request from said

network storage as the replication destination and returning the collected responses as one response to said client (Saito discloses that in response to the client access request a replica is created and then the server returns the client request by sends response from the "file F" (i.e., targeting file) or "replica of File F" (i.e., destination file), see [0012] and [0080], Saito).

Regarding claims 12-15 and 17,

the scopes of claims 12-15 and 17 are substantially the same as claims 9, 5, 11, and 2, respectively. Moreover, Saito teaches the limitation of a root-directory managing a structure of directories and files (See [0064], Saito). Also, McBrearty discloses a mapping table (i.e., unit) for network storages (See [0023], Saito). Furthermore, Pitts discloses the limitation of external file system by disclosing that the network may support different types of file system (See col. 12, lines 46-57, Pitts). Therefore, claims 9, 5, 11, and 2 are rejected on the same basis as set forth for the rejections of claims 1-3, respectively.

Regarding claim 16,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein said judgment unit judges that replication should not be performed if the file access request is a read request and the file access request is not transferred to the external file system as the replication destination (Saito discloses that received file access request might be a read request [see [0083], Saito], which does not change the contents of a file; and also McBrearty discloses judging whether replication is performed

or not [see [0009], McBrearty], which corresponds to the limitation of wherein said judgment unit judges that replication should not be performed if the file access request is a read request and the file access request is not transferred to the external file system as the replication destination).

Regarding claim 18,

the combination of Saito in view of McBrearty and further in view of Pitts discloses a unit for holding master information indicating that the files and directories managed by the unified management directory are masters, wherein said judgment unit judges whether or not replication should be performed in accordance also with the master information (Saito discloses a root-directory managing the directories and files [see [0064], Saito]; Saito further discloses metadata file storing information about files and directories [see [0147], Saito]; and also McBrearty discloses judging whether replication is performed or not [see [0009], McBrearty], which corresponds to the limitation a unit for holding master information indicating that the files and directories managed by the unified management directory are masters, wherein said judgment unit judges whether or not replication should be performed in accordance also with the master information).

Regarding claim 19,

the combination of Saito in view of McBrearty and further in view of Pitts discloses wherein said replication information includes not only the rule but also information for identifying the virtualized-and-unified file system to which the rule is applied (Saito discloses identifying of files by their "File IDs" to be replicated as

replication information [see Fig. 3], also Pitts discloses identifying a file system by the "file system ID) in a network [see col. 10, lines 12-17, Pitts], which corresponds to the limitation of wherein said replication information includes not only the rule but also information for identifying the virtualized-and-unified file system to which the rule is applied).

Regarding claim 22,

the combination of Saito in view of McBrearty and further in view of Pitts discloses capacity management unit for periodically acquiring respective disk capacities and amounts of disk use of said virtualized-and-unified file system and said external file system as the replication destination and determining, from said disk capacities and amounts of disk use, a disk capacity and an amount of disk use which allow for replication ( Saito implicitly discloses the limitation of capacity management unit by disclosing that a membership module maintain status or other nodes including available disk space using by files and file system, and replica is remove by replication engine when a node runs out of space and reclaiming [i.e., acquiring] of disk space if a disk runs out of space, see [0064], 77, and [0098], Saito).

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hares Jami whose telephone number is 571-270-1291. The examiner can normally be reached on Mon to Fri 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hares Jami
Examiner
Art Unit 2162

HJ
08/21/2007

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